

July 23, 2004

Mr. William A. Eaton, Vice President  
System Energy Resources, Inc.  
Entergy Nuclear, M-ECH-38  
1340 Echelon Parkway  
Jackson, MS 39213

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 3 - SYSTEM  
ENERGY RESOURCES, INC., EARLY SITE PERMIT APPLICATION FOR THE  
GRAND GULF ESP SITE (TAC NO. MC1378)

Dear Mr. Eaton:

By letter dated October 16, 2003, System Energy Resources, Inc., (SERI) submitted its application for an early site permit (ESP) for the Grand Gulf ESP site.

The Nuclear Regulatory Commission (NRC) staff is performing a detailed review of the Site Safety Analysis Report (SSAR) in your ESP application. The NRC staff is requesting additional information with respect to the application. The requests for additional information (RAIs) contained in Enclosure 1 address the hydrology, site hazards, and physical security-related information presented in the application. These RAIs were sent to you via electronic mail on June 14 and June 24, 2004, respectively, and were discussed with your staff during the site audit on June 30, 2004.

Receipt of requested information within 45 days of the date of this letter will support the NRC's efficient and timely review of SERI's ESP application. Please note that failure to provide a response in a timely fashion may result in a delay of completion of the staff's safety evaluation report.

If you have any questions or comments concerning this matter, you may contact me at (301) 415-1146 or [rka@nrc.gov](mailto:rka@nrc.gov).

Sincerely,

*/RA/*

Raj K. Anand, Grand Gulf ESP Project Manager  
New Reactors Section  
New, Research and Test Reactors Program  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

Docket No. 52-009

Enclosure: As stated

cc: See next page

Mr. William A. Eaton, Vice President  
System Energy Resources, Inc.  
Entergy Nuclear, M-ECH-38  
1340 Echelon Parkway  
Jackson, MS 39213

July 23, 2004

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 3 - SYSTEM ENERGY RESOURCES, INC., EARLY SITE PERMIT APPLICATION FOR THE GRAND GULF ESP SITE (TAC NO. MC1378)

Dear Mr. Eaton:

By letter dated October 16, 2003, System Energy Resources, Inc., (SERI) submitted its application for an early site permit (ESP) for the Grand Gulf ESP site.

The Nuclear Regulatory Commission (NRC) staff is performing a detailed review of the Site Safety Analysis Report (SSAR) in your ESP application. The NRC staff is requesting additional information with respect to the application. The requests for additional information (RAIs) contained in Enclosure 1 address the hydrology, site hazards, and physical security-related information presented in the application. These RAIs were sent to you via electronic mail on June 14 and June 24, 2004, respectively, and were discussed with your staff during the site audit on June 30, 2004.

Receipt of requested information within 45 days of the date of this letter will support the NRC's efficient and timely review of SERI's ESP application. Please note that failure to provide a response in a timely fashion may result in a delay of completion of the staff's safety evaluation report.

If you have any questions or comments concerning this matter, you may contact me at (301) 415-1146 or rka@nrc.gov.

Sincerely,  
*/RA/*

Raj K. Anand, Grand Gulf ESP Project Manager  
New Reactors Section  
New, Research and Test Reactors Program  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

Docket No. 52-009

Enclosure: As stated

cc: See next page

<u>Hard Copy</u>	<u>E-Mail</u>	
PUBLIC	JDyer/RBorchardt	KCampe
RNRP R/F	MScott	GBagchi
RAnand	ACRS	MRubin
JLyons	AFernandez, OGC	NGilles
LDudes		

ACCESSION NO. ML041960024

OFFICE	RNRP/PM	DE	SPLB/SC	OGC/NLO	RNRP/SC
NAME	RAnand	GBagchi	MRubin	AFernandez	LDudes
DATE	7/14/04	7/14/04	7/20/04	7/22/04	7/22/04

**OFFICIAL RECORD COPY**

**Grand Gulf ESP Application  
Site Safety Analysis Report (SSAR)  
Requests for Additional Information (RAIs)**

SSAR Section 2.2, Nearby Industrial, Military and Transportation Facilities and Routes

RAI 2.2-1

In reference to Section 2.1.2.1, provide a basis for the statement that "... it is extremely unlikely that such third party interests would ever be exercised so as to create an exception to Entergy Operations' control of the exclusion area."

RAI 2.2-2

In Section 2.2.1, a description is given of the nearby airports and air routes. However, in Section 2.2.3, there is no discussion of the potential accidents and hazards related to aircraft activity in the vicinity of the Grand Gulf Nuclear Station (GGNS) ESP site. Aircraft hazards should be addressed with respect to the proposed site.

RAI 2.2-3

In reference to Section 2.2.3.1.1, flammable vapor cloud explosion hazards are not anticipated on the basis of distance and the existence of a bluff 65 feet above the normal river level. Provide a basis for dismissing river traffic hazards involving natural gas releases. Specifically, consider the possibility of flammable vapor cloud formation involving delayed ignition and taking into account the positive buoyancy of natural gas as it relates to the 65-foot bluff elevation.

RAI 2.2-4

In reference to Section 2.2.3.1.1, it is noted that a probabilistic analysis of bulk shipments of ammonia was made for the GGNS and submitted in a letter to the NRC, dated September 23, 1981. Indicate to what extent the conclusions of the GGNS analyses included consideration of control room habitability system design and, if so, how these would be addressed for a new facility.

RAI 2.2-5

In reference to Section 2.2.3.1.1, the probability of a chlorine accident on the Mississippi River is estimated to be about  $1.8 \times 10^{-4}$  per year and it is stated that this is within NRC acceptance criteria. Clarify the specific acceptance criteria considered in this case.

SSAR Section 1.4 Conformance with Regulatory Requirements and Guidance

RAI 1.4-1

Please describe why the following regulatory guides (RGs) are not mentioned in Table 1.4-1: RG 1.27, "Ultimate Heat Sink for Nuclear Power Plants," RG 1.102, "Flood Protection for Nuclear Power Plants," and RG 1.113, "Estimating Aquatic Dispersion of Effluents from Accidental and Routine Reactor Releases."

SSAR Section 2.4.1, Hydrologic Description

RAI 2.4.1-1

Please provide survey coordinates (including elevations) for the bounding areas of all ESP safety-related structures. Also provide the coordinates of existing aquifers in the bounding areas, particularly perched aquifers.

RAI 2.4.1-2

Please describe how de-watering systems may be utilized in the design of future reactor(s).

RAI 2.4.1-3

Please explain how flooding from localized intense precipitation will be handled without interfering with safety-related structures of the new reactor(s).

RAI 2.4.1-4

The application states that there will be a need for an 85,000 gpm service and makeup flow for the new facility. Please explain how these estimates were calculated.

SSAR Section 2.4.2, Floods

RAI 2.4.2-1

Please provide for the road height above Culvert 9 (Stream A) and survey coordinates (including elevation) of Culvert 1 (Stream B).

RAI 2.4.2-2

The probable maximum flood (PMF) for the Mississippi River is estimated based upon the flood defined by U.S. Army Corps of Engineers (USACE's) design project flood (DPF). In calculating the PMF, twice the DPF was used to estimate the PMF. According to the reference cited in the application, a range of 2.5 to 1.67 times the DPF was suggested (corresponding to a DPF to PMF ratio of 0.4 to 0.6, respectively). Why was the number of 2.5 times the DPF not used to estimate the PMF?

RAI 2.4.2-3

The application states that all safety-related structures, systems and components for the new facility would be located above the maximum flood elevation, or flood protection would be provided. Since the plant grade level is above the PMF level, please explain what parts of the new facility might need locally intense precipitation flood protection and why.

RAI 2.4.2-4

The application states (page 2.4-4) that the flood waters do not exceed 133.25 feet mean sea level (MSL). Please provide details that support this calculation.

SSAR Section 2.4.3, Probable Maximum Flood on Streams and Rivers

RAI 2.4.3-1

Please explain how wave runup calculations were bounded through the examination of the Combined Events Criteria indicated in American Nuclear Society (ANS) 2.8 1992 Standard. Please also discuss coincident wave calculations and the basis for applying a 40-mph design wind.

RAI 2.4.3-2

Please provide survey coordinates for points A and B on Figure 2.4-10.

SSAR Section 2.4.6, Probable Maximum Tsunami Flooding

RAI 2.4.6-1

Please document any seismically-induced tsunami-like waves near the site. Please include in this review the ability for a tsunami-like wave to impact the site.

SSAR Section 2.4.9, Channel Diversions

RAI 2.4.9-1

Please provide copies of references related to geological features or other characteristics that preclude any likelihood of channel diversion upstream of the site.

SSAR Section 2.4.11, Low Water Considerations

RAI 2.4.11-1

Please describe how ice jams upstream from the site could (or could not) affect low water conditions at the site. Page 2.4-19 states that a minimum stage of 39.2 feet above MSL occurred on February 3, 1940, when the river discharge was reduced by ice jams. What is the source of this stage data?

SSAR Section 2.4.12, Groundwater

RAI 2.4.12-1

Please provide a description of the local subsurface environment adequate to understand groundwater pathways from the plant including subsurface disturbances of local strata from structures and perched aquifers.

SSAR Section 2.4.13, Accidental Releases of Liquid Effluents in Ground and Surface Waters

RAI 2.4.13-1

Please explain why Cs and Sr were selected in the analysis.

SSAR Section 3.1.6, Site Characteristics-Security Plans

RAI 3.1.6-1

Please provide scale drawings that depict:

- (a) The existing protected area (PA) boundary
- (b) The existing vehicle checkpoint
- (c) Proposed PA boundary for the power block structures and safety-related cooling towers
- (d) The outer boundary of the owner controlled area (OCA)
- (e) The shoreline of the river within the OCA
- (f) All roads and railroads that penetrate the OCA
- (g) The proposed location of the intake structure
- (h) Existing culverts (greater than 254 square inches in cross-section area) that extend outside to inside the existing PA
- (i) Existing and planned vehicle barrier systems
- (j) Barge slips within the OCA
- (k) Existing or planned culverts (greater than 254 square inches in cross-section area) that extend from outside to inside either the area for power blocks structures and/or the area for safety related cooling towers, and
- (l) Grand Gulf Road, Bald Hill Road, Port Claiborne, nearby highway and proposed highway route(s) in relation to the OCA

GRAND GULF EARLY SITE PERMIT  
SERVICE LIST

Grand Gulf

Mr. George A. Zinke  
Manager, Project Management  
Nuclear Business Development  
Entergy Nuclear, M-ECH-683  
1340 Echelon Parkway  
Jackson, MS 39213

Mr. Michael A. Krupa  
Acting Director, Nuclear Safety Assurance  
Grand Gulf Nuclear Station  
Bald Hill Road – Waterloo Road  
Port Gibson, MS 39150

Mr. William A. Eaton  
Vice President  
System Energy Resources Inc.  
Entergy Operations, M-ECH-38  
1340 Echelon Parkway  
Jackson, MS 39213

Ms. Patricia L. Campbell  
Winston & Strawn  
1400 L. Street, N.W.  
Washington, DC 20005-3502

Mr. Michael D. Bourgeois  
Manager, Project Management  
Nuclear Business Development  
Entergy Nuclear, M-ECH-683  
1340 Echelon Parkway  
Jackson, MS 39213

Ms. Frances G. Buford  
Acting Director, Nuclear Safety Assurance  
Entergy Nuclear South, M-ECH-414  
1340 Echelon Parkway  
Jackson, MS 39213

Mr. William K. Hughey  
Sr. Manager, Business Development  
Entergy Nuclear, M-ECH-683  
1340 Echelon Parkway  
Jackson, MS 39213

Mr. Bob Evans  
Enercon Services Inc.  
12850 Middlebrook Road, Suite 108  
Germantown, MD 20874

Mr. George A. Williams  
Site Vice President  
Grand Gulf Nuclear Station  
Bald Hill Road - Waterloo Road  
Port Gibson, MS 39150  
Federal, State and local

Attorney General  
Department of Justice  
State of Louisiana  
P. O. Box 94005  
Baton Rouge, LA 70804-9005

Attorney General  
Asst. Attorney General  
State of Mississippi  
P. O. Box 220  
Jackson, MS 39205-0220

Mr. Robert W. Goff, Program Director  
Division of Radiological Health  
Mississippi State Dept. of Health  
P.O. Box 1700  
Jackson, MS 39215-1700

Mr. Phil Bass, Director  
Office of Pollution Control  
Department of Environmental Quality  
P.O. Box 10385  
Jackson, MS 39289

Mr. Jerry Cain, Chief  
Environmental Permits Division  
Department of Environmental Quality  
P. O. Box 10385  
Jackson, MS 39289

Ms. Kathleen B. Blanco  
Office of the Governor  
P.O. Box 94004, State of Louisiana  
Baton Rouge, LA 70804-9004

GRAND GULF EARLY SITE PERMIT  
SERVICE LIST

-2-

Governor Haley Barbour  
Office of the Governor  
P.O. Box 139, State of Mississippi  
Jackson, MS 39205

Mr. Rick Foster, Director  
Emergency Management for Tensas  
Parish  
P.O. Box 768  
St. Joseph, LA 71366

Military Department  
Louisiana Dept. of Homeland  
Security/Emergency Preparedness  
Col. Mike Brown, Asst. Director  
7667 Independence Boulevard  
Baton Rouge, LA 70806  
Mr. Robert R. Latham, Jr., Director  
Mississippi Emergency Management  
Agency  
P.O. Box 4501, Fondren Station  
Jackson, Mississippi 39296-4501

Ms. Bobbie Young, Director  
Claiborne County Emergency Management  
Agency  
P. O. Box 558  
Port Gibson, MS 39150

Mr. Thomas E. Reynolds  
Co-RAC Chair  
FEMA Region IV  
3003 Chamblee-Tucker Road  
Atlanta, GA 30341

Ms. Prosanta Chowdhury, Project Leader  
Louisiana Department of Environmental  
Quality  
Office of Environmental Compliance  
Nuclear Power Plant Emergency  
Preparedness  
P. O. Box 4312  
Baton Rouge, LA 70821-4312

Ms. Lisa Hammond  
Chief, Technological Services Branch  
FEMA Region VI  
800 N. Loop 288  
Denton, TX 76209-3606

Ms. Vanessa E. Quinn, Chief  
Radiological Emergency Preparedness  
Branch  
Department of Homeland Security/FEMA  
500 C Street, SW  
Washington, DC 20472

Mr. Thomas P. Miller  
U.S. Department of Energy  
Headquarters - Germantown  
19901 Germantown Road  
Germantown, MD 20874-1290

Mr. Gary Wright, Manager  
Division of Nuclear Safety  
Illinois Emergency Management Agency  
1035 Outer Park Drive  
Springfield, IL 62704

Ms. Nancy Butler, Director  
Harriette Person Memorial Library  
606 Main St.  
Port Gibson, MS 39150

Mr. David Lochbaum  
Union of Concerned Scientists  
1707 H Street, NW  
Suite 600  
Washington, DC 20006-3919

Mr. Paul Gunter  
Director of the Reactor Watchdog Project  
Nuclear Information & Resource Service  
1424 16<sup>th</sup> Street, NW, Suite 404  
Washington, DC 20036

Mr. James Riccio  
Greenpeace  
702 H Street, NW, Suite 300  
Washington, DC 20001

Mr. Brendan Hoffman  
Research Associate on Nuclear Energy  
Public Citizens Critical Mass Energy  
and Environmental Program  
215 Pennsylvania Avenue, SE  
Washington, DC 20003



GRAND GULF EARLY SITE PERMIT  
SERVICE LIST

-3-

Mr. Marvin Fertel  
Senior Vice President  
and Chief Nuclear Officer  
Nuclear Energy Institute  
Suite 400  
1776 I Street, NW  
Washington, DC 20006-3708

Mr. Adrian Heymer  
Nuclear Energy Institute  
Suite 400  
1776 I Street, NW  
Washington, DC 20006-3708

Mr. Russell Bell  
Nuclear Energy Institute  
Suite 400  
1776 I Street, NW  
Washington, DC 20006-3708

Mr. James F. Mallay, Director  
Regulatory Affairs  
FRAMATOME, ANP  
3315 Old Forest Road  
Lynchburg, VA 24501

Mr. Ernie H. Kennedy  
Vice President New Plants  
Nuclear Plant Projects  
Westinghouse Electric Company  
2000 Day Hill Road  
Windsor, CT 06095-0500

Dr. Regis A. Matzie  
Senior Vice President and  
Chief Technology Officer  
Westinghouse Electric Company  
2000 Day Hill Road  
Windsor, CT 06095-0500

Mr. Vince Langman  
Licensing Manager  
AECL Technologies Inc.  
481 North Frederick Avenue  
Suite 405  
Gaithersburg, MD 20877

Mr. Ed Wallace, General Manager  
Projects  
PBMR Pty LTD  
PO Box 9396  
Centurion 0046

Republic of South Africa

Mr. Tom Clements  
6703 Guide Avenue  
Takoma Park, MD 20912

Mr. Paul Leventhal  
Nuclear Control Institute  
1000 Connecticut Avenue, NW  
Suite 410  
Washington, DC 20036

Mr. Jack W. Roe  
SCIENTECH, INC.  
910 Clopper Road  
Gaithersburg, MD 20878

Mr. Charles Brinkman  
Westinghouse Electric Co.  
Washington Operations  
12300 Twinbrook Pkwy., Suite 330  
Rockville, MD 20852

Dr. Glenn R. George  
PA Consulting Group  
130 Potter Street  
Haddonfield, NJ 08033

Mr. Joseph D. Hegner  
Lead Engineer - Licensing  
Dominion Generation  
Early Site Permitting Project  
5000 Dominion Boulevard  
Glen Allen, VA 23060

Mr. Thomas Mundy  
Director, Project Development  
Exelon Generation  
200 Exelon Way, KSA3-N  
Kennett Square, PA 19348

External Email  
gzinke.entergy.com  
eddie.grant@exeloncorp.com